State of Louisiana
Department of Natural Resources
Coastal Engineering Division

2006/2007 Annual Inspection Report

for

SABINE REFUGE PROTECTION PROJECT (CS-18)

State Project Number CS-18
Priority Project List 1

March 22, 2007
Cameron Parish

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I. Introduction

The proposed project is located approximately 20 mi (32 km) west-southwest of Hackberry, Louisiana (figure 1) on the east levee of the Burton-Sutton Canal (BSC) adjacent to the Sabine National Wildlife Refuge Impoundment 3, a 27,000 ac (10,927 ha) freshwater impoundment that provides habitat for freshwater game fish, alligator, furbearers, and migratory and resident waterfowl. (See Appendix A).

The Sabine Refuge Protection Project was authorized by Section 303(a) of Title III Public Law 101-646, the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) enacted on November 29, 1990 as amended and approved on the first Priority Project List. The Sabine Refuge Protection Project has a twenty–year (20 year) economic life, which began in February 1995.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Sabine Refuge Protection Project (CS-18) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. Should it be determined that corrective actions are needed, LDNR shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan, 2002). The annual inspection report also contains a summary of maintenance projects which were completed since completion of constructed project features and an estimated projected budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C. A summary of past operation and maintenance projects completed since completion of the Sabine Refuge Protection Project are outlined in Section IV.

An inspection of the Sabine Refuge Protection Project (CS-18) was held on March 22, 2007 under sunny skies and mild temperatures. In attendance were Dewey Billodeau and Darrell Pontiff, from LDNR. Representative from USFWS was Rueben LaBauve. The inspection began at the eastern end of the rock wingwall on the Central Canal Structure No. 4.

The field inspection included an inspection of all of the project features. Staff gage readings and existing temporary benchmarks where available were used to determine approximate elevations of water, rock, embankments, concrete structures and other project features. Photographs were taken (see Appendix B) and Field Inspection notes were completed in the field to record measurements and deficiencies (see Appendix D).

III. Project Description and History

The existing west levee along Impoundment 3, which was constructed in 1951, has deteriorated due to boat wake erosion and subsequent sloughing of levee material into the BSC. It is estimated that the levee is eroding at the rate of 0.27 ft/yr (0.08 m/yr) (LCWCRTF 1991; USFWS 1991). Continued erosion will result in multiple breaches of the levee, allowing higher salinity waters from the Calcasieu Ship Channel and Sabine Lake to enter the impoundment via the BSC. Since much of the freshwater marsh within the impoundment is highly organic and floating, saltwater intrusion and increased tidal exchange would likely convert as much as 13,000 ac (5,261 ha) of the impoundment to shallow open water (LCWCRTF 1991; USFWS 1991). The loss of floating and submersed vegetation would result in greater wind-induced wave erosion of the remaining marsh within the impoundment.

To prevent further bank erosion, 5.5 mi (8.9 km) of free-standing rock breakwater will be constructed on the canal side of the east levee of the BSC (figure 2). In addition, the levee will be restored where is it degraded using dredge material from the canal, and maintenance work will be undertaken at the three weir sites and at three alligator crossings. A similar project, Cameron Prairie Refuge Protection (ME-9), will also utilize a rock breakwater to prevent bank erosion along the Gulf Intracoastal Waterway (GIWW).

Project Objectives

1. Protect the existing freshwater vegetation within Impoundment 3 of Sabine NWR adjacent to the Burton-Sutton Canal.

2. Prevent the encroachment of the Burton-Sutton Canal into the impoundment.

Specific Goals

The following measurable goals were established to evaluate project effectiveness:

1. Restore and protect the west levee of Impoundment 3 using dredge material and a free-standing rock breakwater.

2. Protect existing freshwater vegetation in Impoundment 3 from saltwater intrusion via the Burton-Sutton Canal.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: Below is a summary of completed maintenance projects and operation tasks performed since February 1995, the construction completion date of the Sabine Refuge Protection Project (CS-18).

There has been no required maintenance on this project.

2007 Structure Operations: There are no active operations associated with this project.

V. Inspection Results

Foreshore Rock Dike (Burton Sutton Canal)

The rock breakwater along the Burton Sutton Canal was inspected along its entire reach. The water level in the Burton Sutton Canal was estimated to be +1.1 NAVD88. The dike is in excellent post construction condition. No need for any maintenance in the foreseeable future. (Photos: Appendix B, Photos 1 - 2)

Reinforcement of wingwalls at 3 water control structures

The weirs at Beach Canal Structure No. 2, Northline Canal Structure No. 3, and Stark's Central Canal Structure No. 4 were inspected for rock reinforcement at each wingwall. No maintenance required at any of the structures at this time. (Photos: Appendix B, Photos 3-8).

Alligator crossings

The alligator crossings were not distinguishable from the surrounding levee, therefore it is assumed that the alligators are no longer using them.

Stark's Central Canal

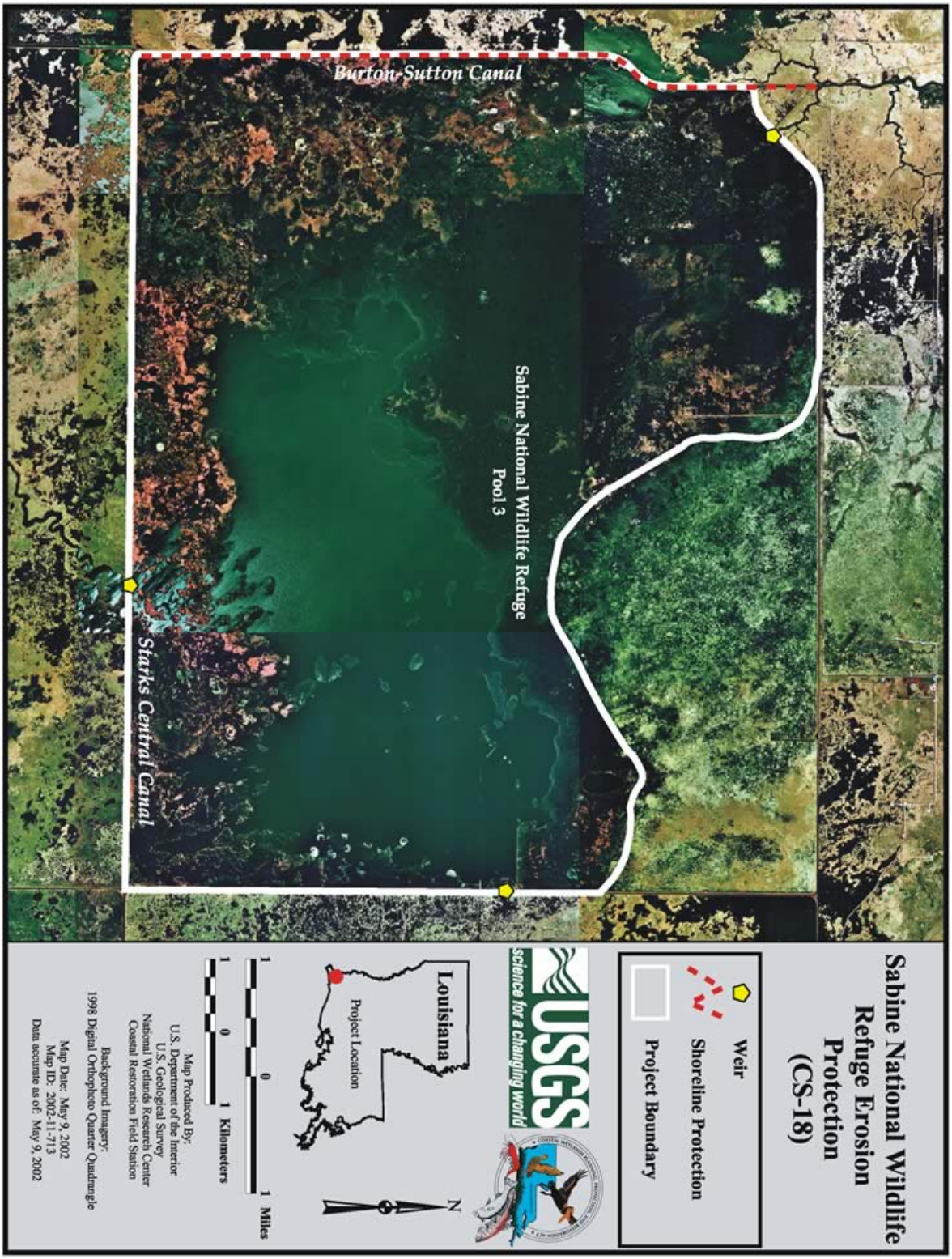
Portions of the Stark's Central Canal were clogged with wrack and debris from Hurricane RITA. USFWS plans to leave this material in place to help control water flow in the refuge. (Photos: Appendix B, Photo 9).

VI. Conclusions and Recommendations

Overall, the Sabine Refuge Protection Project is in excellent condition with structures functioning as designed. Input will be sought from USFWS personnel to determine whether alligator crossings are of any benefit. Should it be determined that alligators no longer use these areas once they are reinforced, they can be cut from future projects. In addition, USFWS personnel indicate that the Tennessee Valley Authority (TVA) is currently conducting a study on CTU 3 and once complete the refuge will have updated information on operation of the three weir control structures.

Appendix A

Project Features Map


Sabine National Wildlife Refuge Erosion Protection (CS-18)
Weir
Shoreline Protection
Project Boundary
Burton-Sutton Canal
Sabine National Wildlife Refuge
Pool 3
Starks Central Canal
USGS
Science for a changing world
Louisiana
Project Location
N
1 0 1 Kilometers
1 0 1 Miles
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Background Imagery:
1998 Digital Orthophoto Quarter Quadrangle
Map Date: May 9, 2002
Map ID: 2002-11-713
Data accurate as of: May 9, 2002

Appendix B

Photographs

Photo 1—southern tie-in on Burton Sutton Canal (March 22, 2007)

Photo 2—northern tie-in on Burton Sutton Canal (March 22, 2007)

Photo 3—northern wingwall rock on Beach Canal Structure No. 2 (March 22, 2007)

Photo 4—southern wingwall rock on Beach Canal Structure No. 2 (March 22, 2007)

Photo 5 – southwest wingwall rock on Northline Canal Structure No. 3 (March 22, 2007)

Photo 6 – northeast wingwall rock on Northline Canal Structure No. 3 (March 22, 2007)

Photo 7 – eastern wingwall rock on Stark's Central Canal Structure No. 4 (March 22, 2007)

Photo 8 – western wingwall rock on Stark's Central Canal Structure No. 4 (March 22, 2007)

Photo 9 – Central Canal, view looking east, showing canal clogged with wrack and debris from Hurricane RITA which will remain in place. (March 22, 2007)

Appendix C

Three Year Budget Projection

SNWR EROSION PROTECTION/ CS-18 / PPL 1

Three-Year Operations & Maintenance Budgets 07/01/2007 - 06/30/10

Project Manager	O & M Manager	Federal Sponsor	Prepared By
Pat Landry	*Dewey Billodeau*	*USFWS*	*Dewey Billodeau*

	2007/2008	2008/2009	2009/2010
Maintenance Inspection	$ 5,407.00	$ 5,570.00	$ 5,737.00
Structure Operation			
Administration		$ -	$ -
Maintenance/Rehabilitation			

07/08 Description:

E&D	
Construction	
Construction Oversight	
Sub Total - Maint. And Rehab.	$ -

08/09 Description

E&D	$ -
Construction	$ -
Construction Oversight	$ -
Sub Total - Maint. And Rehab.	$ -

09/10 Description:

E&D	$ -
Construction	$ -
Construction Oversight	$ -
Sub Total - Maint. And Rehab.	$ -

	2007/2008	2008/2009	2009/2010
Total O&M Budgets	**$ 5,407.00**	**$ 5,570.00**	**$ 5,737.00**

O &M Budget (3 yr Total)	**$ 16,714.00**
Unexpended O & M Budget	**$ 278,768.86**
Remaining O & M Budget (Projected)	**$ 262,054.86**

Appendix D

Field Inspection Form

Annual Inspection Report
SABINE REFUGE PROTECTION
State Project No. CS-18

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name:CS-18 Sabine National Wildlife Refuge — Date of Inspection: March 22, 2007 Time: 10:35 a.m.

Structure No. Impoundment Area 3 — Inspector(s):Dewey Billodeau, Darrell Pontiff - LDNR; Rueben LaBauve - USFWS

Structure Description: Rock Dike — Water Level Inside:N/A Outside: +1.1

Type of Inspection: Annual — Weather Conditions: Sunny and mild

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage /Supports	N/A				
Rip Rap					
Rock Dike	Good			1 & 2	
W.W. Reinf.	Good			3 to 8	
Earthen Embankment	Good				

What are the conditions of the existing levees?
Are there any noticeable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

Appendix E

Locations to be Monitored